

**WHAT IS CLAIMED IS:**

1. An aerosol generator, comprising:
  - (a) a fluid passage arranged between a first and a second layer, wherein the first and second layers at least partially define the fluid passage;
  - 5 (b) a fluid supply arranged to provide a fluid in liquid phase to the fluid passage;
  - (c) a heater arranged to volatilize the fluid in the fluid passage; and
  - (d) an outlet arranged to receive the volatilized fluid and direct the volatilized fluid out of the fluid passage.
- 10 2. The aerosol generator of Claim 1, wherein the fluid passage comprises a channel disposed in the first and/or second layers.
- 15 3. The aerosol generator of Claim 1, wherein the first layer is bonded to the second layer by a material selected from the group consisting of a glass, metal, a cement, an epoxy, an acrylic, a cyanoacrylic and mixtures thereof.
- 20 4. The aerosol generator of Claim 1, wherein the first layer is mechanically attached to the second layer.
- 25 5. The aerosol generator of Claim 1, further comprising a third layer defining a void space, wherein the third layer is arranged between the first and second layers, and wherein the fluid passage is further defined by the third layer defining the void space.
6. The aerosol generator of Claim 5, wherein a first surface of the third layer is bonded to the first layer, and/or a second surface of the third layer is bonded to the second layer, by a material selected from the group consisting of a glass, a metal, a cement, an epoxy, an acrylic, a cyanoacrylic and mixtures thereof.



7. The aerosol generator of Claim 5, wherein a first surface of the third layer is mechanically attached to the first layer and/or a second surface of the third layer is mechanically attached to the second layer.

5 8. The aerosol generator of Claim 5, wherein the third layer comprises a material selected from the group consisting of alumina, zirconia, silica and mixtures thereof.

10 9. The aerosol generator of Claim 1, wherein the first layer comprises a material selected from the group consisting of alumina, zirconia, silica and mixtures thereof.

15 10. The aerosol generator of Claim 1, wherein the second layer comprises a material selected from the group consisting of alumina, zirconia, silica and mixtures thereof.

11. The aerosol generator of Claim 1, wherein the heater is arranged to directly contact the fluid in the fluid passage.

20 12. The aerosol generator of Claim 1, wherein the heater is arranged to conduct heat, through the first and/or second layer, to the fluid in the fluid passage.

25 13. The aerosol generator of Claim 1, wherein the heater comprises a material selected from the group consisting of platinum, titanium nitride, stainless steel, nickel chromium, aluminum or alloy thereof, iron or alloy thereof, iron or titanium aluminide, titanium or alloy thereof, tungsten or alloy thereof, and mixtures thereof.



14. The aerosol generator of Claim 1, further comprising a second heater, wherein the heater is disposed upon the first layer and the second heater is disposed upon the second layer.

5 15. The aerosol generator of Claim 1, wherein the heater is sputtered, printed, adhesively bonded or coated on the first and/or second layer.

16. The aerosol generator of Claim 1, wherein the fluid passage is a linear passage.

10

17. The aerosol generator of Claim 1, wherein the fluid passage is a non-linear passage, a tapered passage, and/or a segmented passage wherein the flow passage has different sized cross sections.

15

18. The aerosol generator of Claim 1, wherein the heater is in electrical contact with first and second contacts which pass an electrical current through the heater, and wherein the volatilized fluid is ejected from the fluid passage when the electrical current is passed through the heater.

20

19. The aerosol generator of Claim 18, wherein the first and second contacts comprise copper or alloy thereof, gold or alloy thereof, or silver or alloy thereof.

25

20. The aerosol generator of Claim 1, wherein the fluid comprises a medicated material.

21. The aerosol generator of Claim 1, further comprising a power supply for heating the heater.



22. The aerosol generator according to Claim 1, wherein the fluid passage contains from about 0.000001 ml to 0.005 ml of fluid.

5 23. The aerosol generator according to Claim 1, wherein the outlet extends through a surface of the first or second layer.

24. The aerosol generator according to Claim 1, further comprising a chamber connected to receive the fluid in liquid phase from the fluid supply and to provide the fluid to the fluid passage, wherein the chamber contains a predetermined amount of the fluid in liquid phase.

25. The aerosol generator according to Claim 1, wherein the heater comprises a uniformly thick layer of resistance heating material having a rectangular or tapered shape, a uniformly thick layer of resistance heating material having a plurality of discrete segments, a layer of resistance heating material which varies in thickness, or a layer of resistance heating material which varies in width.

26. A method for generating an aerosol, comprising the steps of:  
(a) supplying fluid to a fluid passage arranged between a first and a second layer, wherein the first and second layers at least partially define the fluid passage and a heater is arranged to volatilize the fluid in the fluid passage and supply the volatilized fluid to an outlet which directs the volatilized fluid out of the fluid passage;

25 (b) heating the heater so as to volatilize the fluid in the fluid passage; and  
(c) directing the volatilized fluid out of the fluid passage via the outlet.

27. The method of Claim 26, wherein the heater heats the fluid in the fluid passage by thermal conduction.



28. The method of Claim 26, wherein the heater heats the fluid by thermal conduction through the first and/or second layer.

5 29. The method of Claim 26, wherein the fluid passage comprises a channel disposed in the first and/or second layers and the volatilized fluid is ejected through an opening in a surface of the first and/or second layers.